

Benicia Arsenal Shop Buildings
(Buildings Nos. 55, 56, 57)
Benicia Industrial Park
Benicia
Solano County
California

HABS No. CA-1833

HABS.
CAL,
48-BENI,
4P-

PHOTOGRAPHS

HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY

BENICIA ARSENAL SHOP BUILDINGS
(Buildings Nos. 55, 56, 57)

HABS No. CA-1833

Location: Tyler Street, Benicia Industrial Park, Benicia,
Solano County, California.

USGS Benicia Quadrangle, Universal Transverse
Mercator Coordinates: 10.575590.4211050.

Present Owner: Benicia Industries, Inc. c/o Al Wanger, Vice-
President, Benicia Industrial Park, Benicia,
California 94510.

Present Occupant: UNICO (Buildings Nos. 56 and 57); Laminations
Unlimited (Building No. 55)

Present Use: Industrial shops.

Significance: Although constructed separately in 1876, 1877,
and 1884, these buildings form a nearly
symmetrical composition which dominated the lower
arsenal area. They contain great interior open
spaces covered by three different roof truss
systems.

PART I. HISTORICAL INFORMATION

A. Physical History

1. Date of erection: Building No. 55 (Blacksmith Shop): 1876;
Building No. 56 (Machine Shop): 1884; Building No. 57 (Carpenter
Shop): 1877. These dates are inscribed on the buildings.
2. Architect: None known.
3. Original plans and construction: There is a relatively large
number of drawings relating to the shops in the National
Archives, Cartographic Division, Record Group 156, listed in full
in Sources of Information, below. Unfortunately many of these
drawings are difficult to identify exactly. There is a large,
consistent set of drawings made for Building No. 55 in 1874, two
years before the building was erected. A second, smaller set of
drawings was made in 1875 for Building No. 57, which was
constructed in 1877. The drawings for Building No. 56 are
undated. It is not known whether the present arrangement of
three buildings was the original intention, but a drawing dating
to 1881 that shows all three structures with the connecting
corridor between them proves that the idea had originated by this
time.

BENICIA ARSENAL SHOP BUILDINGS
(Buildings Nos. 55, 56, 57)
HABS No. CA-1833 (Page 2)

4. Alterations and additions: These buildings have had extensive additions. Much of the area between and behind them has been built over. Site plans of the arsenal from the late 19th and early 20th centuries show the three buildings as freestanding except for a connecting corridor between them at the rear. Building No. 55 has functioned almost continuously as a blacksmith shop. Building No. 56 is labeled "Machine Shop" on an original drawing, and remained a machine shop at least until 1900. Building No. 57 was referred to in an 1889 report as a carpenter shop (See Supplemental Information). A 1906 inventory listed it as a leather and canvas shop.

Prepared by: Robert Brueggemann
Project Historian
Historic American Buildings Survey
August, 1976

PART II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural character: These three buildings display good examples of brick and stone masonry for a large work area.
2. Condition of fabric: Good. Numerous one-story additions have obscured the original one-story connections between the buildings.

B. Description of Exterior:

1. Over-all dimensions: Building No. 55 is a one-story rectangular building which measures approximately 65' across its three-bay front by 108' deep. Building No. 56 is a two-story rectangular building that measures approximately 60' across its three-bay front by 243' deep. Building No. 57 is a two-story rectangular building that measures approximately 65' across its three-bay front by 108' deep.
2. Foundations: Sandstone.

BENICIA ARSENAL SHOP BUILDINGS
(Buildings Nos. 55, 56, 57)
HABS No. CA-1833 (Page 3)

3. Walls: Common-bond brick with stone trim, all painted tan. Brick pilasters with stone capitals are located at the corners and between each window. There is a stone beltcourse at the spring line height of the round-arched windows and, on the two-story buildings, between the floors.
4. Structural system, framing: Building No. 55 has brick load-bearing walls with steel truss made up of small steel angles and iron tie rods. The other two buildings have brick load-bearing walls, timber beams, cast-iron columns and wood trusses, with purlins. Building No. 57 has a king post truss and Building No. 56 has a modified fan truss.
5. Porches, stoops, bulkheads, etc.: There is a concrete stairway to the basement area under Building No. 57 on the southwest corner. An iron railing is around the opening. A wooden closed-string fire stair with wooden handrail is on the northwest corner of the building. Concrete ramps lead from exterior doors.
6. Openings:

- a. Doorways and doors: A large double opening approximately 14' in height is at both ends of Building No. 55 and the north ends of Building Nos. 56 and 57. Building No. 55 has a large wood-framed doorway with diagonal-plank doors. An access door is cut into one leaf each end. Above the doorway on the north end is a stone piece with "1876" carved in it. The round-arched fanlight over the door is louvered.

The main doors on Buildings Nos. 56 and 57 have large stone surrounds with flat arches and projecting stone keystones. The door on Buildings No. 56 is a large diagonal-plank sliding door with an access door cut in it. It is surmounted by a stone engraved "1884." Building No. 57 has double wood frame diagonal-plank doors, surmounted by a stone engraved "1877." A door similar to the latter is on the east side of Building No. 56. Other exterior doors are blocked up. A doorway with wood paneled double doors has been cut into a window opening on the east side of the second floor of Building No. 56.

- b. Windows and shutters: Building No. 55 has wooden windows with four-over-four-light single-hung sashes, surmounted by louvered fanlights. Each opening has a double window with a wide mullion, deeply recessed wood jambs and a stone sill. There are two stone arches above each pair of windows,

BENICIA ARSENAL SHOP BUILDINGS
(Buildings Nos. 55, 56, 57)
HABS No. CA-1833 (Page 4)

separated by a brick arch. A three-row, brick rowlock arch is on the interior of the windows. In the gables are large round louvers surrounded by stone and four projecting keystones. Windows on the west wall have been bricked up.

Buildings Nos. 56 and 57 have wooden windows on the first floor of each building with four-over-four-light, single-hung sashes. Each opening has a double window with wide mullion, deeply recessed jambs and a stone sill. Wooden windows on the second floor are like those in Building No. 55. These buildings also have gable windows similar to those in Building No. 55. The louver on the south end of Building No. 56 is boarded up.

7. Roof:

- a. Shape, covering: Gable roof covered with slate. Building No. 55 has six large round metal ventilators located on the roof at the ridge line.
- b. Cornice, eaves: A cyma recta stone cornice extends around each building. There is a brick frieze and a stone rake on the gable ends.

C. Description of Interior:

1. Floor plans:

- a. Basement: Under Building No. 56 is a dirt-floored cellar housing mechanical equipment. Under Building No. 57 the cellar has a partial concrete floor and concrete bunkers for test firing of small arms. Building No. 55 has no cellar.
- b. First floor: Building No. 55 has one large open space, with a doorway in the center on the north and south. Buildings No. 56 and 57 each have a large open space with two rows of cast-iron columns. In Building No. 56 there are two offices and a toilet in the southwest corner, enclosed by a window wall.
- c. Second floor: The second-floor plan of Buildings No. 56 and 57 are similar to the first floors. In Building No. 56 the offices extend across the north end of the second floor. There is a toilet on the northeast corner of Building No. 57.

- 2. Stairways: The stairways in Buildings No. 56 and 57 are cast-iron, open-string, dog-leg stairs with landing. The iron

BENICIA ARSENAL SHOP BUILDING
(Buildings Nos. 55, 56, 57)
HABS No. CA-1833 (Page 5)

railing with iron pipe balusters extends from a cast iron newel on the first floor. Four cast-iron columns support the landing. A wooden ladder-type stair leads to the cellar through a floor door in Building No. 56.

3. Flooring: Building No. 55 has concrete flooring. Building No. 56 has concrete and wood on the first floor, while Building No. 57 has wood on the first floor. The second floors of the latter two buildings are narrow boards over the original wide boards.
4. Wall and ceiling finish: The walls are painted brick. The partitions in the offices are painted gypsum boards. In Building No. 56 the first-floor offices have a vertical wood panel wainscot. The ceilings in Building No. 55 are exposed; in the others they are covered with wood.
5. Doorways and doors: Doorways are wooden with wood panel doors. The door to the office on the first floor of Building No. 56 has a large wood panel at the bottom and four glass panels above with a transom window.
6. Mechanical equipment:
 - a. Heating: Unit heaters suspended from the roof structure.
 - b. Lighting: Industrial incandescent and fluorescent lighting fixtures.

D. Site:

The buildings face north in an industrial park. Numerous wood and concrete additions surround and are adjoined to the buildings, connecting the interior spaces. Asphalt paving surrounds the buildings.

Prepared by: John P. White
Project Supervisor
Historic American Buildings Survey
August, 1976

PART III. SOURCES OF INFORMATION

- A. Architectural Drawings: The following drawings are located in the National Archives, Cartographic Division, Record Group 156:

1. Buildings Nos. 55, 56, 57:

BENICIA ARSENAL SHOP BUILDINGS
(Buildings Nos. 55, 56, 57)
HABS No. CA-1833 (Page 6)

"Shops at Benicia, Sections." Black ink with white, yellow, ochre, blue, orange, and black watercolor on paper. Building numbers in pencil under each set of drawings. A transverse section of each building showing interior framing and a section showing the wall elevation for three or four bays. Folder 2. (HABS No. CA-1833-6)

"Shops at Benicia, Elevation," dated May 20, 1881, signed "J McAllister." Blue-line print. A front elevation of three shops with a small connecting passage between each. Folder 2. (HABS No. CA-1833-7)

2. Building No. 55 (Blacksmith Shop):

"Blacksmith's Shop at Benicia Arsenal," dated July 25, 1874. Black ink with blue, tan, and yellow watercolor on paper. A plan and two elevations. Folder 5. (HABS No. CA-1833-8)

"Smith's Shop." Black and red ink on paper. Plan, section, and window elevations. Folder 4.

"Blacksmith's Shop at Benicia Arsenal, Plan of Foundation." Black, blue, and red ink on paper. Folder 5.

"Blacksmith's Shop at Benicia Arsenal, Ground Plan." Black ink with red and yellow watercolor on paper. Folder 4.

"Blacksmith's Shop at Benicia Arsenal, Side Elevation," dated Nov. 1874. Black ink with blue watercolor. Folder 5.

"Blacksmith's Shop at Benicia Arsenal, Front Elevation." Black ink with blue watercolor. Folder 5. (HABS No. CA-1833-9)

"Blacksmith's Shop at Benicia Arsenal, Transverse Section." Black ink with red, yellow, blue, and brown watercolor. Folder 5. (HABS No. CA-1833-10)

"Blacksmith's Shop at Benicia Arsenal, Transverse Section," dated July 25, 1874. Black ink with tan and blue watercolor on paper. Folder 5.

"Sketch of Truss for Blacksmith Shop." Blue, black and red ink on linen. Folder 3.

"Ordnance Dept. Benicia, Blacksmith Shop, Parts of Side." Black ink with blue and ochre watercolor on paper. Elevation and section. Folder 3.

BENICIA ARSENAL SHOP BUILDINGS
(Buildings Nos. 55, 56, 57)
HABS No. CA-1833 (Page 7)

3. Building No. 56 (Machine Shop):

- a. "Machine Shop." Black and red ink on paper, drawing encased in clear plastic. Plan, transverse section, longitudinal section showing three bays of the interior wall, and two details. Folder 4. (HABS No. CA-1833-11)
- b. "New Shop Benicia Arsenal." Black ink on paper. Front and side elevations. Folders 1 and 2. (HABS No. CA-1833-12 and -13)
- c. Unlabeled fragment of drawing, dated May 12, 1875. On back labeled "Machine Shop." Black ink with red and yellow watercolor on paper. Second floor plan. Folder 2.

4. Building No. 57 (Carpenter Shop):

- a. "New Shop Benicia Arsenal," dated May 12, 1875. Black ink on paper. Front and side elevation. Folder 1. (HABS No. CA-1833-14 and -15)
- b. "New Shop Benicia Arsenal, Foundation Plan," dated May 12, 1875. Black ink with yellow and orange watercolor on paper. A second version of this drawing is almost identical but is on linen. Folder 3.
- c. "_____ Shop Benicia Arsenal" (pieces of drawing missing), dated May 12, 1875. Black ink with blue, red, and tan watercolor on paper. Transverse section of the building. Folder 5.

B. Early Views:

Two U.S. Army photographs, date unknown. One shows the north front and the other the north front and west side. (HABS No. CA-1833-4 and -5)

- C. Supplemental Information: From "Report on the Capacity for Storing and Distributing Ordnance Stores and Facilities for Manufacture and Repairs at Benicia Arsenal," Report of the Secretary of War, U.S. Congress, 1st Sess., 1889, Serial Vol. 3911, p. 548.

BENICIA ARSENAL SHOP BUILDINGS
(Buildings Nos. 55, 56, 57)
HABS No. CA-1833 (Page 8)

The buildings at this arsenal for manufacturing purposes consist of a brick smith shop, 100 feet by 50 feet, one story high; a brick carpenter shop, 100 feet by 50 feet, two stories high; a brick machine shop, 205 feet by 53 feet, two stories high. Power is supplied by a 150 horsepower engine of Corliss type and four boilers.

The shops are unusually well lighted for buildings of their dimensions and there is sufficient capacity for the installation of the plant necessary to do all of the work....The forge shop is equipped with four forges, a steam hammer of good capacity, a drop hammer, a heavy double shears of Sellers pattern and one heavy lathe used in banding projectiles. It has a capacity for at least four additional forges, a total of eight.

In the machine shop a small portion of the lower floor only is occupied. There are 2 engine lathes, 1 shafting lathe, 1 Universal hand lathe, 1 shaper, 1 Universal grinder, 1 tool grinder, 1 Universal hand lathe, 1 upright and power drill, 1 emery grinder with table, 1 drilling machine (heavy), 1 planer, 1 open side planer, 1 slotter, and 1 engine lathe. All these tools are serviceable, though some of them are of old pattern. The machine shop is provided with a hand power hoist.

The carpenter shop is provided with 2 very old-fashioned but efficient wood-turning lathes, 1 compound mortising machine, 1 vertical boring machine, 1 wood planer of very old pattern, 1 dimension planer, 1 band and saw machine, 1 combined rip and crosscut saw, 2 mortising machines, 1 turning machine with 2 caps and 2 heads, and 1 dowel machine.

PART IV. PROJECT INFORMATION

This project was undertaken by the Historic American Buildings Survey in cooperation with Exxon Company, U.S.A. (a division of Exxon Corporation) and the Benicia Historical Society. Under the direction of John Poppeliers, Chief of H.A.B.S., the project was completed during the summer of 1976 at the Historic American Buildings Survey Field Office, Benicia, California, by John P. White (Assistant Professor, Texas Tech University), Project Supervisor; Robert Bruegmann (University of Pennsylvania), Project Historian; Kenneth Payson (Cornell University), Architect; and student assistant architects Scott Barnard (University of Pennsylvania); James L. Cook (Texas Tech University); and Gary A. Statkus (University of Illinois, Urbana-Champaign). The written data were edited by Alison K. Hoagland in the HABS Washington office in January, 1981.